990-2

Metal/Nonmetal - Surface Fatalities Second Half - 1990

U.S. Department of Labor
Mine Safety and Health Administration

ABSTRACTS WITH ILLUSTRATIONS

ANALYSIS AND SUGGESTED USES

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Metal/Nonmetal - Surface Fatalities Second Half - 1990

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INTRODUCTION

The 1990 Fatal Illustration Program is divided into four categories or subject areas. These categories are underground coal mining; surface coal mining; underground metal/nonmetal mining; and surface metal/nonmetal mining. Fatalities in each category are grouped by accident type.

The materials in this unit include illustrated abstracts (summaries) of all chargeable surface metal/nonmetal mining fatalities for the second six months of 1990 accompanied by 35mm slides.

A statistical analysis is included for fatalities that occurred during July through December 1990. The analysis examines the following areas: the victim's experience, the accident classification, the victim's occupation, and the size of the mine where the fatality occurred. Tables are included in this package. They are divided into first half and second half data for 1990. The tables tabulate age and experience of the victim, accident classification and occupation of the victim, and mine size and location of the accident. A slide index is also included which helps locate fatalities for a particular occupation, accident classification, location, and mine size.

DISCLAIMER

The abstracts included in this program are intended to be used for instructional purposes. Efforts are made to base this data on MSHA's final accident investigation reports. However, preliminary investigation information may have been used for these abstracts to meet the deadline for this publication.

FATALITIES - SURFACE METAL/NONMETAL MINES
SECOND HALF 1990

STATISTICAL ANALYSIS

Twenty-one fatal accidents occurred at surface metal/nonmetal mines during July through December 1990.

Victim's Experience

- Thirty-three percent of the accidents in the second half occurred to workers with over 20 years mining experience.

Accident Classification

- Six of the twenty-one fatalities were powered haulage and five were machinery. Three slip/fall of person and electrical fatals occurred during the second half.

Victim's Age

- Forty-seven percent of the fatalities occurred to workers under 35 years of age.

Mine Size

- Sixty-seven percent of the second half fatalities occurred at large mines.

Mining Operation

- Twenty-nine percent of the fatalities occurred at limestone operations and fifteen percent occurred at sand and gravel operations.

Contractor Fatalities

- Five of the fatalities occurred to contractors.

***** NOTE *****

Due to consecutive fatal case numbering, it appears that metal/nonmetal fatalities total 58 for 1990. However, the actual total is 56 because fatal case numbers 31 and 34 were later determined as not chargeable to the mining industry.

FATALITIES BY VICTIM'S AGE
SURFACE METAL/NONMETAL

First Half 1990

Age (Years)	Number of Fatalities
17-19	3
20-25	1
26-30	3
31-35	2
36-40	3
41-45	2
46-50	3
51-55	3
56-60	3
65-70	1

Second Half 1990

Age (Years)	Number of Fatalities
20-25	3
26-30	3
31-35	4
36-40	1
41-45	4
46-50	1
51-55	2
56-60	1
61-65	1
65-70	1

FATALITIES BY VICTIM'S EXPERIENCE
SURFACE METAL/NONMETAL

First Half 1990

Experience (Years)	Mining Experience	Job Experience	Experience This Mine
1 - 4 days	1	1	1
1 - 3 weeks		2	2
1 - 6 mos.	3	1	4
7 - 11 mos.	1	2	1
1 - 2 yrs.	3	8	5
3 - 4 yrs.	4	4	1
5 - 6 yrs.	1		1
7 - 8 yrs.			1
9 - 10 yrs.	1		1
13 - 15 yrs.	3	1	1
16 - 20 yrs.	2	3	3
21 - 25 yrs.	1		
26 - 30 yrs.	1	1	
31 - 40 yrs.	1		1
41 - 45 yrs.	1	1	1
Unknown	1		1

Second Half 1990

Experience (Years)	Mining Experience	Job Experience	Experience This Mine
0 - 1 day		1	
1 - 6 mos.	1	1	2
1 - 2 yrs.	2	2	3
3 - 4 yrs.	4	2	3
5 - 6 yrs.		1	1
7 - 8 yrs.	1	2	1
9 - 10 yrs.	1	2	
11 - 12 yrs.	3	3	2
13 - 14 yrs.	1	3	
15 - 16 yrs.	1	1	1
21 - 22 yrs.	2		1
23 - 24 yrs.	2		1
30 + yrs.	2		
Unknown	1	2	5
N/A		1	1

FATALITIES BY ACCIDENT CLASSIFICATION
SURFACE METAL/NONMETAL 1990

Classification	Fatalities (1st Half)	Fatalities (2nd Half)	Fatalities (Total)
Electrical		3	3
Explosives & Breaking Agents		2	2
Exp. Vessel Under Pressure	1	1	2
Fall of Face/Highwall	1		1
Falling/Sliding Material	1		1
Handling Materials	1		1
Machinery	4	5	9
Powered Haulage	13	6	19
Slip/Fall of Person	2	3	5
Other	1	1	2

FATALITIES BY MINE SIZE
SURFACE METAL/NONMETAL 1990

Mine Size	Fatalities (1st Half)	Fatalities (2nd Half)	Fatalities (Total)
Small *	10	7	17
Large **	14	14	28

* Less than 20 employees
** 20 or more employees

FATALITIES BY VICTIM'S OCCUPATION
SURFACE METAL/NONMETAL 1990

Occupation	Fatalities (1st Half)	Fatalities (2nd Half)	Fatalities (Total)
Automotive Mechanic		1	1
Blaster		1	1
Car Loader		1	1
Contract Owner/Supervisor		1	1
Dredge Operator	2		2
Driller Helper	1		1
Dozer Operator	1		1
Electrician		1	1
Equipment Operator		1	1
Front-End Loader Operator	1	2	3
Laborer	1	2	3
Machinist	1		1
Maintenance Man	1		1
Maint. Man/Crusher Oper.	1		1
Maintenance Technician		1	1
Maintenance Wkr. Prod. Oper.		1	1
Mechanic	2		2
Mechanic Helper		1	1
Owner/Operator		1	1
Part-Time Helper		1	1
Plant Utilityperson		1	1
Primary Crusher Operator	1		1
Primary Welder		1	1
Rigger	1	1	2
Scale Clerk		1	1
Shipping Dept. Employee		1	1
Supervisor	1		1
Truck Driver	7		7
Utility Laborer	1		1
Utility Man	1		1
Welder	1		1
Welders Helper		1	1

FATALITIES BY MINING OPERATION
SURFACE METAL/NONMETAL 1990

Mining Operation	Fatalities (1st Half)	Fatalities (2nd Half)	Fatalities (Total)
Cement	1	1	2
Copper	6	1	7
Crushed Limestone	1		1
Crushed Stone	1	1	2
Gold	2	1	3
Granite	2		2
Iron Ore		1	1
Kaolin		1	1
Limestone	2	6	8
Molybdenum/Copper		1	1
Phosphate		1	1
Perlite		1	1
Sand and Gravel	8	3	11
Sandstone		1	1
Silica Flux		1	1
Silica Sand	1		1
Traprock		1	1

FATALITIES BY MINE SIZE
SURFACE METAL/NONMETAL - SECOND HALF 1990

You will find fatalities that happened at:
SMALL MINES * on slides 24, 25, 30, 34, 35, 37, and 41
LARGE MINES ** on slides 26, 27, 28, 29, 31, 32, 33, 36, 38
39, 40, 42, 43, and 44

* Less than 20 employees
** 20 or more employees

FATALITIES BY TYPE OF MINING OPERATION
SURFACE METAL/NONMETAL - SECOND HALF 1990

You will find fatalities that happened at:
CEMENT operations on slide 32
CRUSHED STONE operations on slide 27
COPPER operations on slide 36
KAOLIN operations on slide 44
GOLD operations on slide 37
IRON ORE operations on slide 43
LIMESTONE operations on slides 25, 28, 31, 39, 40, and 42
MOLYBDENUM/COPPER operations on slide 26
PERLITE operations on slide 29
PHOSPHATE operations on slide 38
SAND AND GRAVEL operations on slides 24, 30, and 35
SANDSTONE operations on slide 34
SILICA FLUX operations on slide 41
TRAPROCK operations on slide 33

SLIDE INDEX

FATALITIES BY OCCUPATION
SURFACE METAL/NONMETAL - SECOND HALF 1990

You will find fatalities that happened to:
AUTOMOTIVE MECHANICS on slide 43
BLASTERS on slide 42
CAR LOADERS on slide 29
CONTRACT OWNERS/SUPERVISORS on slide 37
ELECTRICIANS on slide 36
EQUIPMENT OPERATORS on slide 28
FRONT-END LOADER OPERATORS on slides 25 and 35
LABORERS on slides 27 and 34
MAINTENANCE TECHNICIANS on slide 26
MAINTENANCE WORKER PRODUCTION OPERATORS on slide 39
MECHANIC HELPERS on slide 38
OWNER/OPERATORS on slide 30
PART-TIME HELPERS on slide 41
PLANT UTILITYPERSONS on slide 33
PRIMARY WELDERS on slide 31
RIGGERS on slide 32
SCALE CLERKS on slide 24
SHIPPING DEPARTMENT EMPLOYEES on slide 40
WELDERS HELPERS on slide 44

FATALITIES BY ACCIDENT CLASSIFICATION
SURFACE METAL/NONMETAL - SECOND HALF 1990

You will find:
ELECTRICAL fatalities on slides 35, 36, and 37
EXPLOSIVES AND BREAKING AGENT fatalities on slides 41 and 42
EXPLODING VESSEL UNDER PRESSURE fatalities on slide 43
MACHINERY fatalities on slides 30, 31, 32, 33, and 34
POWERED HAULAGE fatalities on slides 24, 25, 26, 27, 28, and 29
SLIP/FALL OF PERSON fatalities on slides 38, 39, and 40
OTHER fatalities on slide 44

ABSTRACT OF INVESTIGATION

Date: July 30, 1990

Slide Number: 24 (Fatal Case Number: 35)
Accident Classification: Powered Haulage
Type of Mine: Sand and Gravel - Surface
Location: Wisconsin

Age of Victim: 66
Total Mining Experience: 3 years, 7 weeks
Total Experience at this Mine: 3 years, 7 weeks
Total Experience at this Job: N/A
Number Employed at Mine: 4
Number Working at Time of Accident: 4
Time of Accident: 9:55 a.m.

A scale clerk left the scale house, walked across the scale, and proceeded across the plant yard. At the same time a truck driver entered the plant yard and lined up with the washed sand stockpile and stopped. He then began backing his truck towards the stockpile. The truck's automatic reverse signal alarm was emitting a loud beeping noise as he backed up. The truck driver did not realize he had backed over the scale clerk until he saw him lying in front of the truck. The scale clerk died immediately from massive internal injuries to the chest.

Means of Prevention
Never place yourself in a hazardous location around moving equipment.

ABSTRACT OF INVESTIGATION
Date: August 21, 1990 (Died August 27, 1990)
Slide Number: 25 (Fatal Case Number: 40)
Accident Classification: Powered Haulage
Type of Mine: Limestone - Surface
Location: New York

Age of Victim: 26
Total Mining Experience: 3 years
Total Experience at this Mine: 5 months
Total Experience at this Job: 5 months
Number Employed at Mine: 12
Number Working at Time of Accident: Unknown
Time of Accident: 6:28 a.m.

A loader operator was fatally injured while backing his front-end loader down a 10 percent grade to the fueling station. He backed over a four foot high berm and dropped 80 feet into an old section of the quarry. He died six days later of his injuries. The loader was originally equipped with seat belts; however, the seat belts had apparently been removed in order to install a new seat.

Means of Prevention

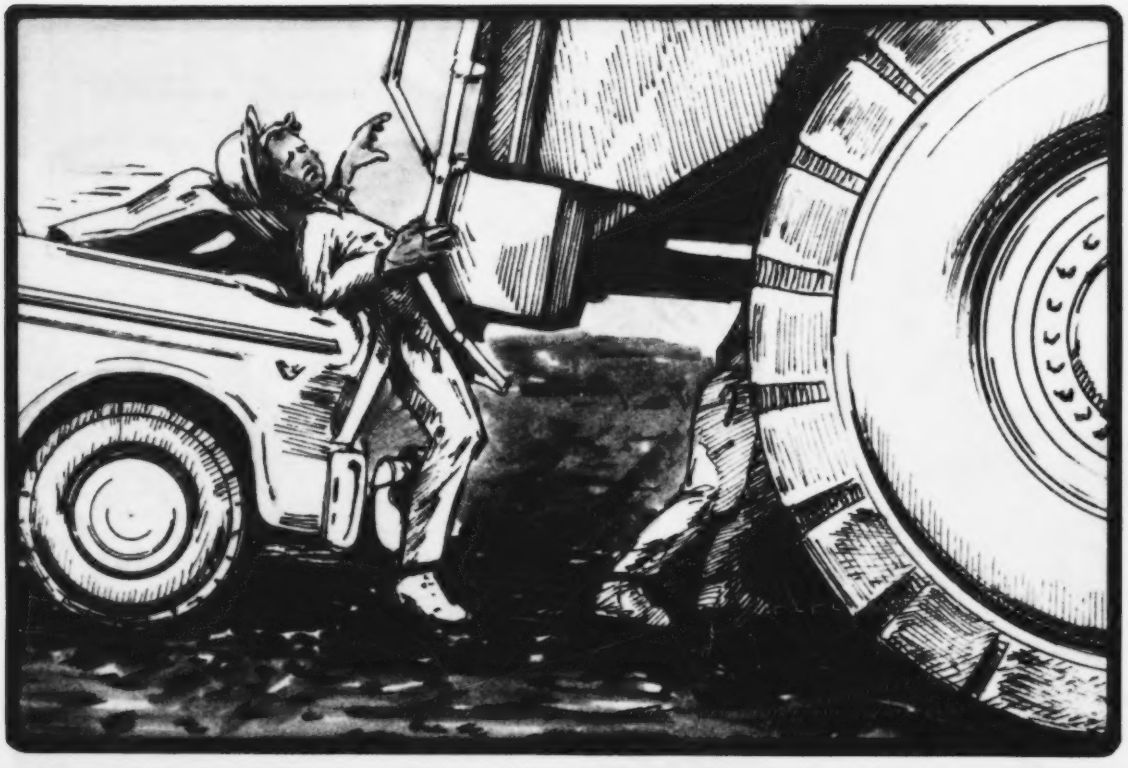
1. Operators of self-propelled mobile equipment shall maintain control of the equipment while it is in motion.
2. Seat belts shall be installed on front-end loaders that are required to have a roll-over protective structure.
3. Operators of self-propelled mobile equipment should use whatever means are available to observe the area ahead of their direction of travel while the equipment is in motion.

ABSTRACT OF INVESTIGATION
Date: August 29, 1990
Slide Number: 26 (Fatal Case Number: 41)
Accident Classification: Powered Haulage
Type of Mine: Molybdenum/Copper - Surface
Location: Nevada

Age of Victim: 45
Total Mining Experience: 1 year, 6 months
Total Experience at this Mine: 1 year, 6 months
Total Experience at this Job: 10 years
Number Employed at Mine: 243
Number Working at Time of Accident: 24
Time of Accident: 1:10 a.m.

A mine maintenance technician was fatally injured while helping an electrician and a foreman find a problem with a haul truck which had quit running. A service truck was parked about 15 feet upgrade from the disabled truck so that its headlights could be used to illuminate the work area. The technician and another mechanic were standing at the front of the haul truck talking about possible causes of the problem when the service truck began to move. The service truck struck the maintenance technician knocking him against the haul truck ladder and pinning him with its bumper.

Means of Prevention
1. When parked on a grade, wheels of mobile equipment shall be chocked or turned into a bank.
2. Illumination at work areas shall be sufficient to provide safe working conditions.



ABSTRACT OF INVESTIGATION

Date: September 25, 1990

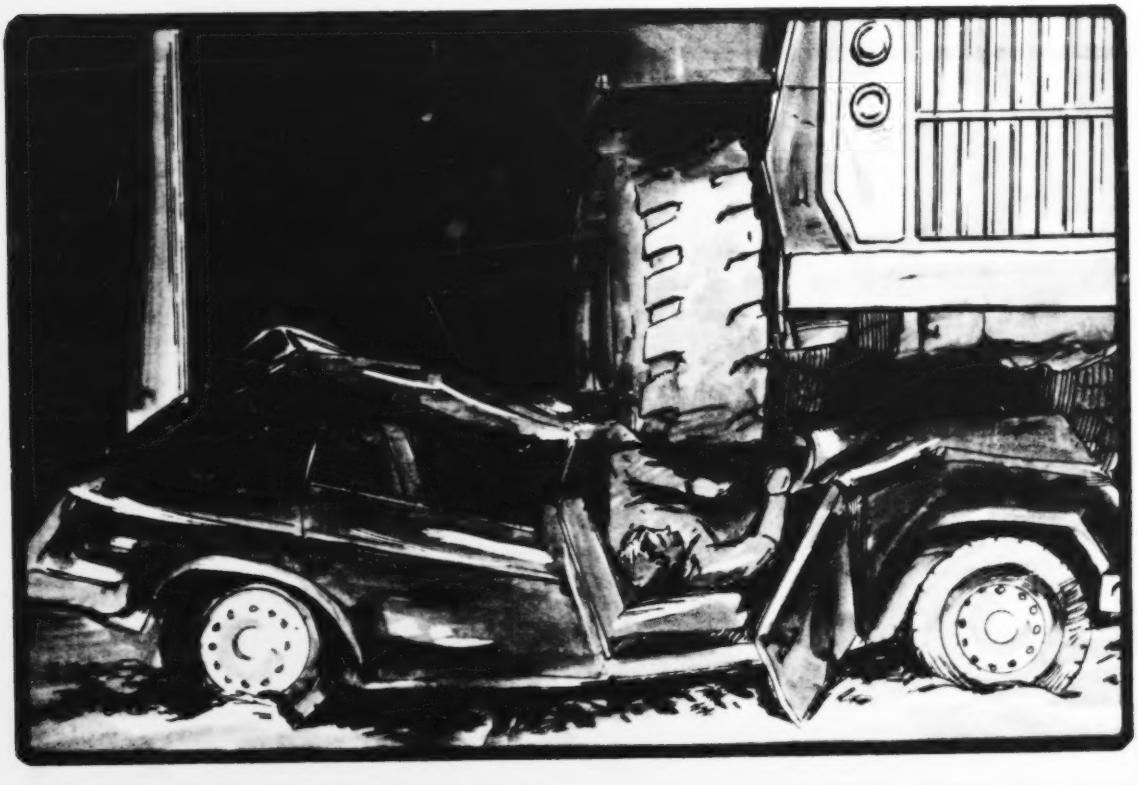
Slide Number: 27 (Fatal Case Number: 45)
Accident Classification: Powered Haulage
Type of Mine: Crushed Stone - Surface
Location: New York

Age of Victim: 59
Total Mining Experience: 24 years
Total Experience at this Mine: 24 years
Total Experience at this Job: 13 years
Number Employed at Mine: 127
Number Working at Time of Accident: 27
Time of Accident: 6:55 p.m.

An 85-ton haul truck was leaving the dump area when a laborer drove his personal car in front of the haul truck. The truck driver thought he had hit a stone and decided to remove it from the roadway. When he had backed up approximately 8 feet, he discovered he had run over the laborer's car. The laborer was fatally injured as a result of the accident.

Means of Prevention

Before moving self-propelled mobile equipment, equipment operators shall sound a warning that is audible above the surrounding noise level or use other effective means to warn all persons who could be exposed to a hazard from the equipment.



ABSTRACT OF INVESTIGATION

Date: November 19, 1990

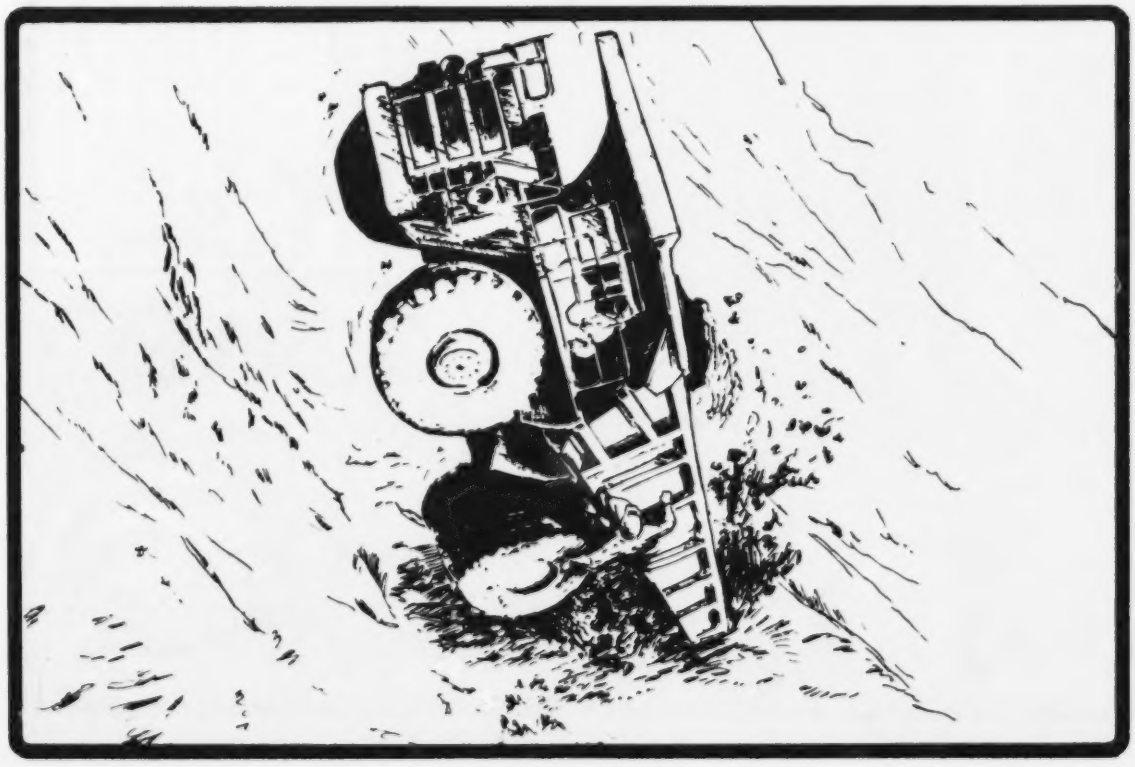
Slide Number: 28 (Fatal Case Number: 54)
Accident Classification: Powered Haulage
Type of Mine: Limestone - Open Pit
Location: Pennsylvania

Age of Victim: 31
Total Mining Experience: 12 years
Total Experience at this Mine: 12 years
Total Experience at this Job: 6 years
Number Employed at Mine: 21
Number Working at Time of Accident: 21
Time of Accident: 10:00 a.m.

An equipment operator was fatally injured while transporting material from the quarry to the dump site using an 85-ton haul unit. As the loaded unit ascended the final grade (approximately 150 feet long, 16 percent grade) the machine stopped about half way up. It started going backwards, plowed through a berm, and fell approximately 120 feet over a highwall. A heavy concentration of particulates in the truck's fuel may have caused plugging of the fuel system. In addition, the supplemental steering system was not functional.

Means of Prevention

1. All truck drivers should be trained in the testing and use of the supplementary steering system.
2. Defects on any equipment, machinery, and tools that affect safety shall be corrected in a timely manner to prevent hazards.



ABSTRACT OF INVESTIGATION

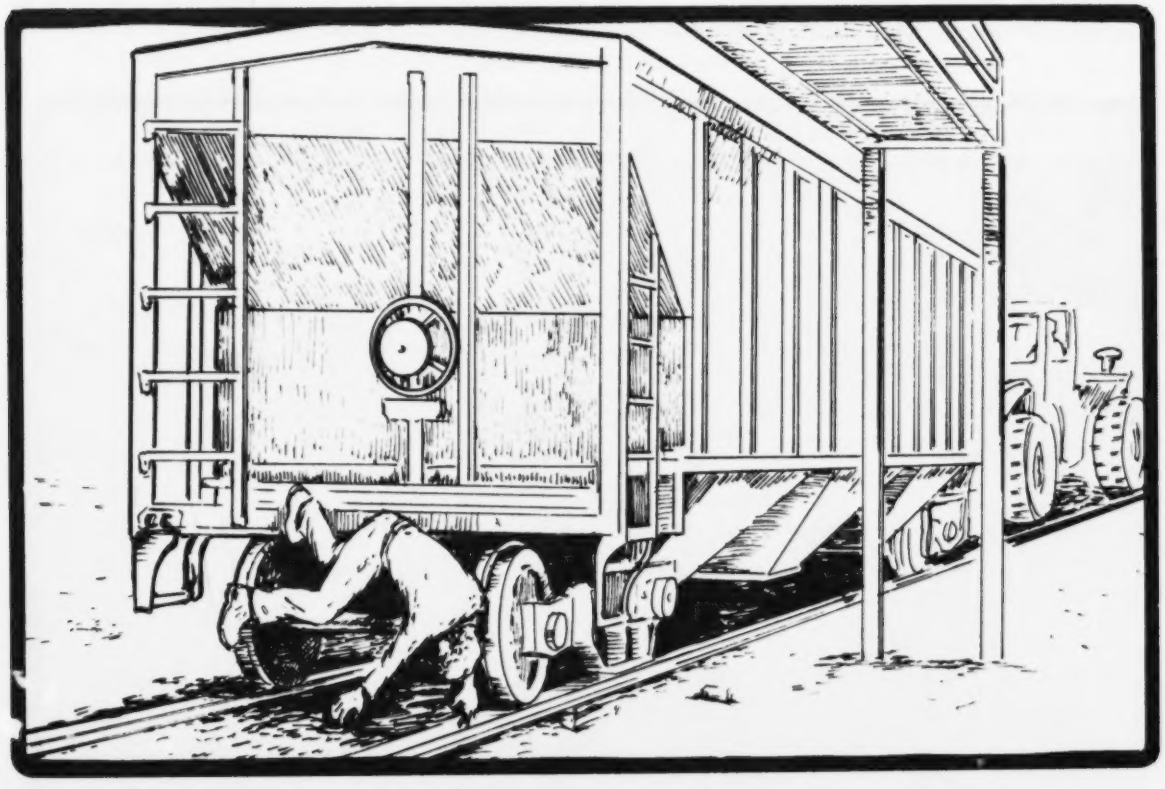
Date: December 16, 1990

Slide Number: 29 (Fatal Case Number: 57)
Accident Classification: Powered Haulage
Type of Mine: Perlite - Open Pit
Location: New Mexico

Age of Victim: 26
Total Mining Experience: 2 years
Total Experience at this Mine: 2 years
Total Experience at this Job: 2 years
Number Employed at Mine: 36
Number Working at Time of Accident: 2
Time of Accident: 1:00 p.m.

Two hopper cars were being loaded for shipment. The first car had just been loaded and moved out of the way and the second unlatched and ready for movement. The car loader was on top of the second car when the front-end loader hit the car and began pushing it. The car loader lost his balance and fell in front of the moving car. The front-end loader did not see the victim fall and continued to push the car over the victim.

Means of Prevention
Safety belts and lines shall be worn when persons work where there is danger of falling.



ABSTRACT OF INVESTIGATION

Date: April 25, 1990 (Chargeback)

Slide Number: 30 (Fatal Case Number: 36)

Accident Classification: Machinery

Type of Mine: Sand and Gravel - Surface

Location: Minnesota

Age of Victim: 45
Total Mining Experience: 24 years
Total Experience at this Mine: Unknown
Total Experience at this Job: 12 years
Number Employed at Mine: 2
Number Working at Time of Accident: 2
Time of Accident: 5:07 p.m

An owner/operator was repairing a slipping clutch on a crusher/screener. He disengaged the clutch so that he could adjust it but did not shut off the engine. He then climbed into the bucket of a front-end loader and had his son raise the bucket and move the front-end loader into position directly in front of the clutch. He removed the access plate on top of the bell housing with a pry bar and a screwdriver and reached into the clutch area to do the repair work. The pry bar entered a portion of the rotating clutch assembly and flew out striking the owner/operator in the upper chest area causing fatal injuries.

<u>Means of Prevention</u>

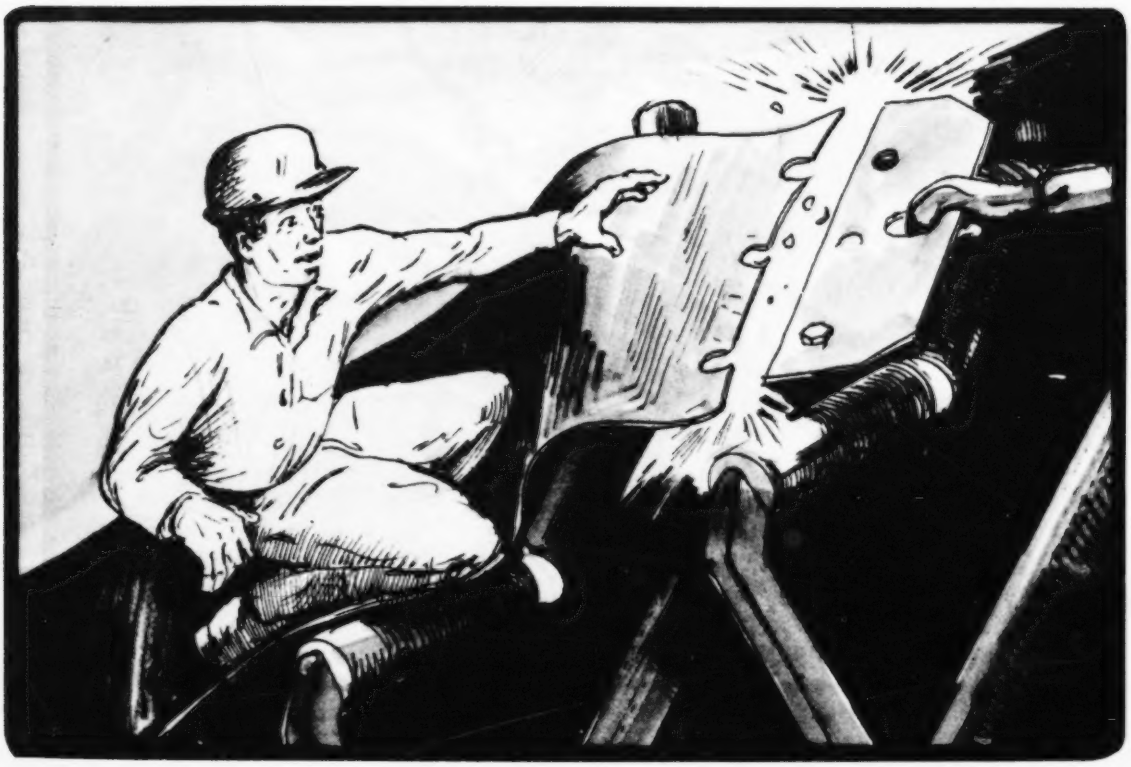
Repairs or maintenance of machinery or equipment shall be performed after the power is off, and the machinery or equipment blocked against hazardous motion.

ABSTRACT OF INVESTIGATION
Date: August 26, 1990
Slide Number: 31 (Fatal Case Number: 39)
Accident Classification: Machinery
Type of Mine: Limestone - Surface
Location: Indiana

Age of Victim: 51
Total Mining Experience: 13 years
Total Experience at this Mine: 6 years, 1 month
Total Experience at this Job: 13 years
Number Employed at Mine: 33
Number Working at Time of Accident: Unknown
Time of Accident: 11:50 a.m.

A primary welder was assisting in repairing a conveyor belt that had separated at a splice. One end of the conveyor belt had been pulled up over the head pulley from underneath and secured to the conveyor structure with a chain. The other end was pulled up the conveyor structure from the tail pulley end with a crane. The crane cable was attached to the conveyor belt end with a steel plate attachment using two bolts through the conveyor belt. The welder climbed off the conveyor walkway onto the conveyor belt so the pulling attachment could be removed. During this process the bolts on the attachment pulled through the conveyor belt. The welder was on the belt when the attachment to the belt let go. The loose belt came down off the conveyor taking the welder with it. He descended on the conveyor belt approximately 300 feet before he was thrown off and fell 40 feet to the ground. He died of multiple blunt force injuries.

Means of Prevention
1. Safety belts and lines shall be worn when persons work where there is a danger of falling.
2. Machinery, equipment, and tools shall not be used beyond the design capacity intended by the manufacturer where such use may create a hazard to persons. The steel plate attachment was inadequate to hold the weight of the belt that was pulled into position.



ABSTRACT OF INVESTIGATION

Date: September 20, 1990

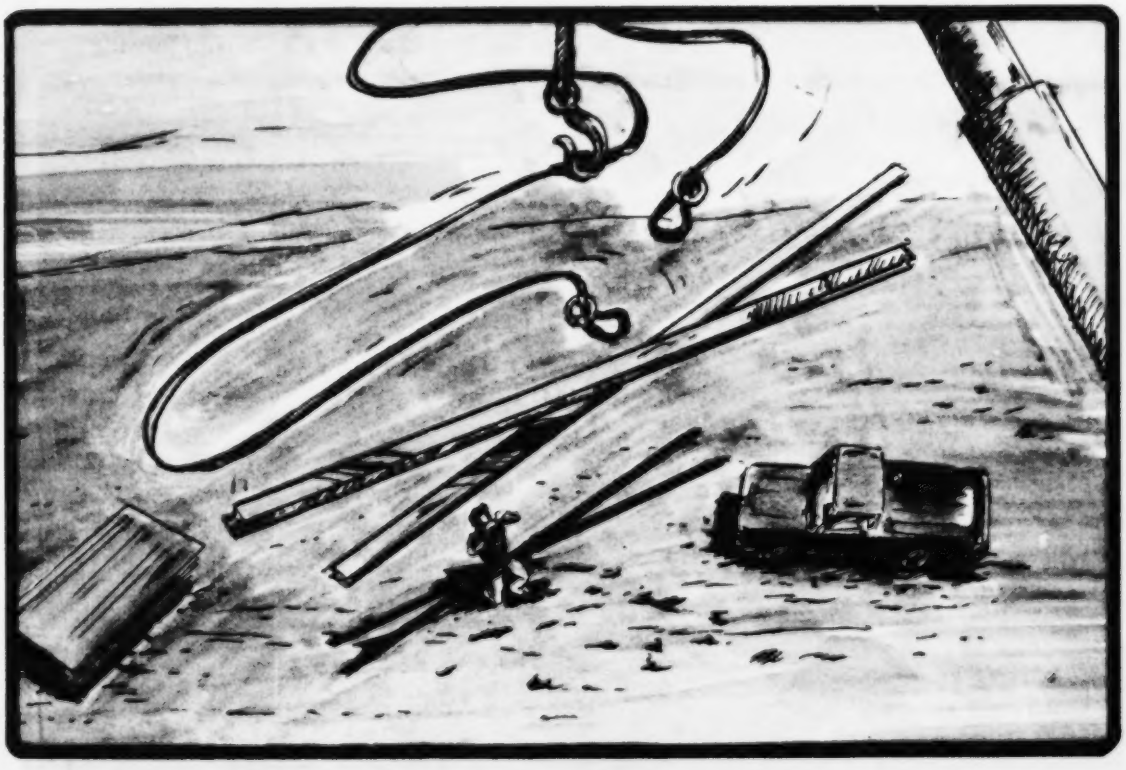
Slide Number: 32 (Fatal Case Number: 43)
Accident Classification: Machinery
Type of Mine: Cement - Surface
Location: Puerto Rico

Age of Victim: 24
Total Mining Experience: 3 years, 2 months (Contractor)
Total Experience at this Mine: 3 years, 2 months
Total Experience at this Job: 3 years, 2 months
Number Employed at Mine: 90 (Contractor)
Number Working at Time of Accident: Unknown
Time of Accident: 6:30 a.m.

A rigger was helping other employees unload I-beams from a flatbed truck. Normally the truck was unloaded by lifting a single beam at a time with two nylon slings. The rigger was to remove the slings after they had been lowered to the ground. The men were unloading the fourth load, when they found two I-beams stuck together. Since they could not pry them apart, they tied both beams together and signaled the crane operator to hoist the load. The load shifted and the beams fell about 30 feet, striking the rigger, causing fatal injuries.

Means of Prevention

1. Equipment and supplies shall be loaded, transported, and unloaded in a manner which does not create a hazard to persons.
2. Stay clear of suspended loads.



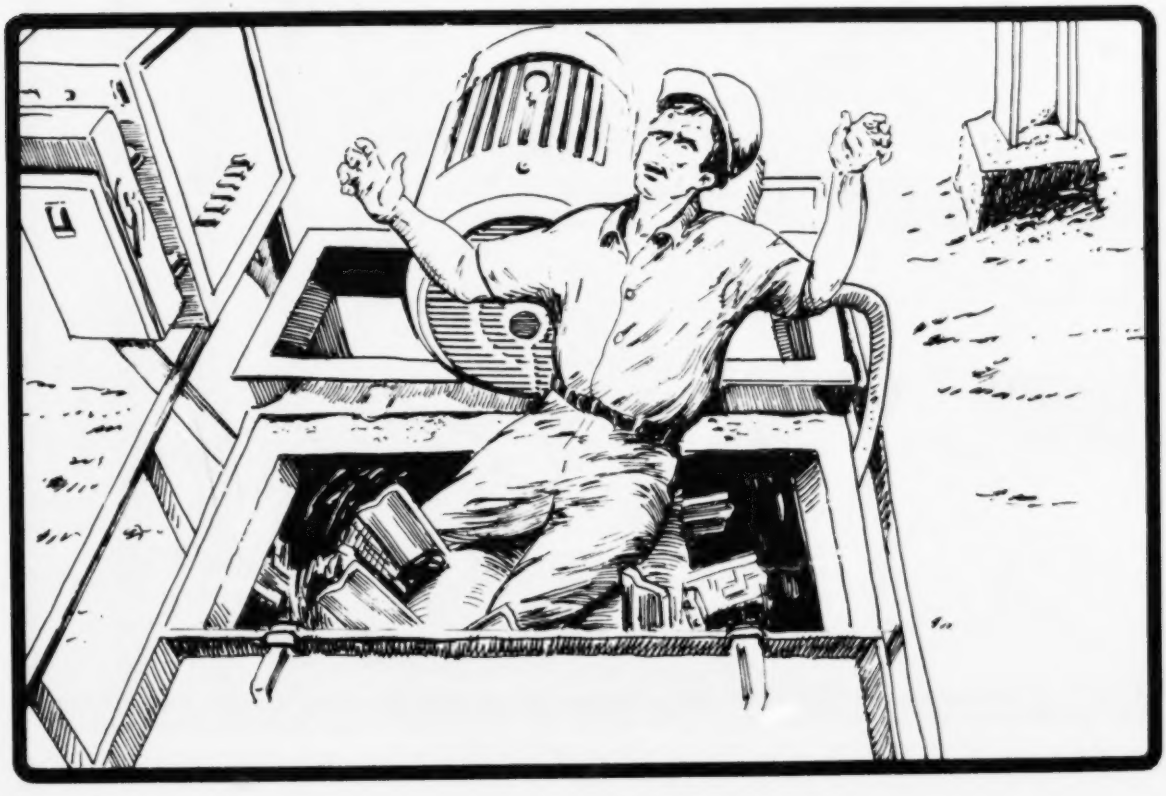
ABSTRACT OF INVESTIGATION
Date: October 13, 1990
Slide Number: 33 (Fatal Case Number: 47)
Accident Classification: Machinery
Type of Mine: Traprock - Mill/Preparation Plant
Location: Hawaii

Age of Victim: 21
Total Mining Experience: 2 years, 8 months
Total Experience at this Mine: 2 years, 8 months
Total Experience at this Job: 2 years, 1 month
Number Employed at Mine: 104
Number Working at Time of Accident: Unknown
Time of Accident: 4:30 - 6:30 p.m.

A plant utilityperson became entangled in a twin-shaft pug mill. There were no witnesses to the accident. Apparently he was attempting to correct the problem of dust not being adequately moisturized in the pug mill when he either fell or was drawn into the moving equipment. One of the metal covers used to enclose the mill was not in place and the mill was not shut down and locked out.

Means of Prevention

1. Electrically powered equipment shall be deenergized before mechanical work is done on such equipment. Power switches shall be locked out or other measures taken which shall prevent the equipment from being energized without the knowledge of the individuals working on it.
2. Guards shall be securely in place while machinery is being operated, except when testing or making adjustments which cannot be performed without removal of the guard.



ABSTRACT OF INVESTIGATION

Date: October 25, 1990

Slide Number: 34 (Fatal Case Number: 51)

Accident Classification: Machinery

Type of Mine: Sandstone - Open Pit

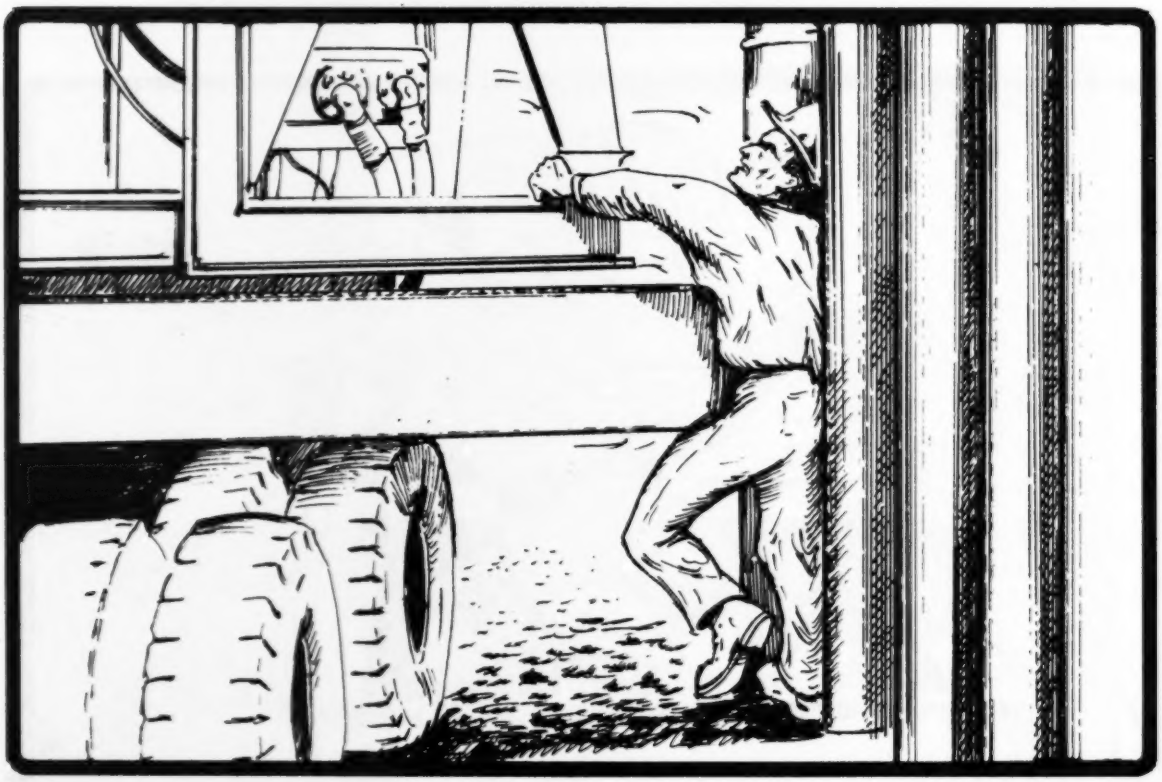
Location: Pennsylvania

Age of Victim: 31
Total Mining Experience: 10 years
Total Experience at this Mine: Unknown
Total Experience at this Job: 10 years
Number Employed at Mine: 8
Number Working at Time of Accident: 8
Time of Accident: 10:45 a.m.

A laborer was assisting in breaking blocks of carbon. A gradall was positioned between the blocks and the plant storage building. The laborer was directing the movements of the gradall operator. He instructed the operator to pivot the house of the machine so that he could see if there was enough wall clearance to allow the machine to swing during the breaking process. The pivot of the house caught the laborer between the counterweight of the machine and the wall of the building causing fatal injuries.

Means of Prevention

A safe means of escape shall always be provided and maintained to all working places.



ABSTRACT OF INVESTIGATION

Date: August 3, 1990

Slide Number: 35 (Fatal Case Number: 37)
Accident Classification: Electrical
Type of Mine: Sand and Gravel - Surface Mill
Location: Texas

Age of Victim: 27
Total Mining Experience: 6 1/2 years
Total Experience at this Mine: 6 1/2 years
Total Experience at this Job: 6 1/2 years
Number Employed at Mine: 5
Number Working at Time of Accident: 5
Time of Accident: 12:30 p.m.

A front-end loader operator was assigned to operate the plant because the regular plant operator did not report to work. The loader operator was positioned on the main feed hopper grizzly observing plant operations and operating the control for the vibrator. The hand-held vibrator control switch was damaged to the extent that the plastic stop button was missing. He apparently contacted the energized switch mechanism with his left thumb while his right arm was touching the steel retaining wall on the grizzly. The current traveled across his upper body, causing fatal injuries.

Means of Prevention

When a potentially dangerous condition is found it shall be corrected before equipment or wiring is energized.

ABSTRACT OF INVESTIGATION

Date: October 20, 1990

Slide Number: 36 (Fatal Case Number: 50)

Accident Classification: Electrical

Type of Mine: Copper - Open Pit

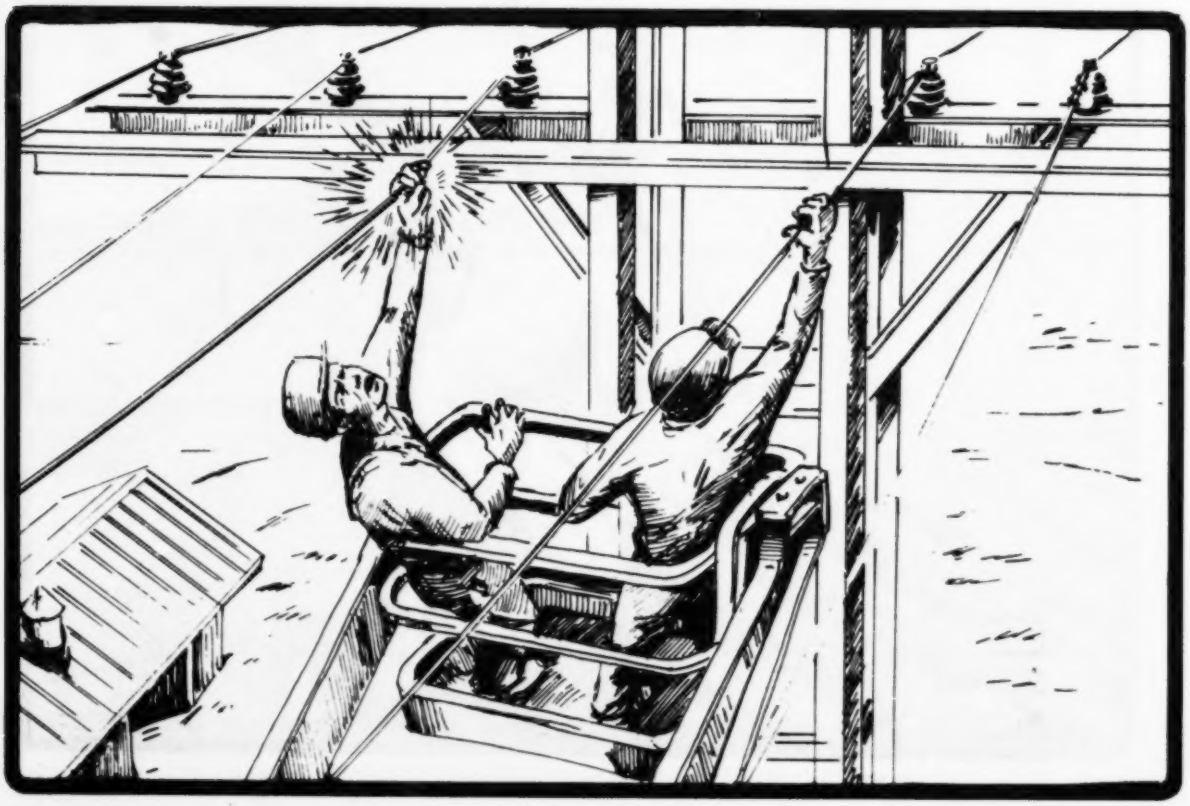
Location: Arizona

Age of Victim: 41
Total Mining Experience: 22 years
Total Experience at this Mine: Unknown
Total Experience at this Job: 13 years
Number Employed at Mine: 72
Number Working at Time of Accident: 7
Time of Accident: 9:05 a.m.

An electrician was fatally injured while working on two 2300 volt overhead powerlines. Two electricians were modifying two existing circuits. They traveled up the side of the 60 foot tower in the crane basket. They installed a crossarm at the 50 foot level of the tower. Before going down to allow the welder to come up in the basket and complete the crossarm installation, one of the electricians reached up to test the tension on the wires, and was electrocuted. They had mistakenly left one of the circuits energized.

Means of Prevention

When working on electrical equipment, always be sure that all safety precautions are taken. Be sure to test to verify that circuits are deenergized. Use hot-line tools or insulating blankets to prevent contacting energized conductors.

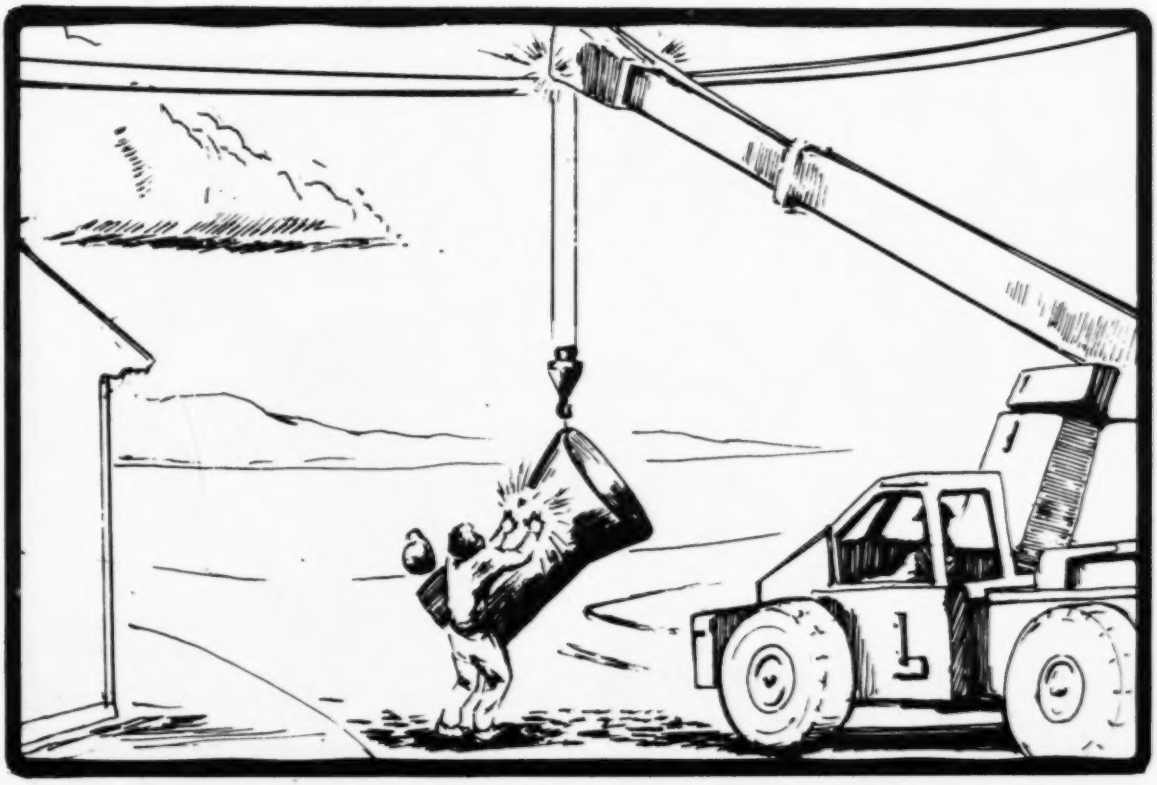


ABSTRACT OF INVESTIGATION
Date: November 2, 1990
Slide Number: 37 (Fatal Case Number: 52)
Accident Classification: Electrical
Type of Mine: Gold - Open Pit
Location: Nevada

Age of Victim: 64
Total Mining Experience: 44 years (Contractor)
Total Experience at this Mine: Unknown
Total Experience at this Job: Unknown
Number Employed at Mine: 5
Number Working at Time of Accident: Unknown
Time of Accident: 3:50 p.m.

Mine construction contractors were installing a scrubber on a new dust collection system at the secondary crusher building. The owner/supervisor of the steel construction firm (subcontractor) and the crane operator, who was an employee of the general contractor, took a 12 1/2 ton rubber-tired crane to retrieve the stack for the scrubber. After picking up the stack, the crane was backed onto the access road. When the crane started to move forward, the elevated crane boom contacted a 60,000 volt powerline. The steel contractor owner/supervisor was supporting the stack by hand at the time of contact with the high voltage powerline and was electrocuted.

Means of Prevention
1. When equipment must be moved or operated near energized high-voltage powerlines (other than trolley lines) and the clearance is less than 10 feet, the lines shall be deenergized or other precautionary measures shall be taken.
2. Taglines shall be attached to loads that may require steadying or guidance while suspended.



ABSTRACT OF INVESTIGATION

Date: July 3, 1990
Slide Number: 38 (Fatal Case Number: 28)
Accident Classification: Slip/Fall of Person
Type of Mine: Phosphate - Surface
Location: Florida

Age of Victim: 31
Total Mining Experience: 12 years (Contractor)
Total Experience at this Mine: N/A
Total Experience at this Job: 12 years (Construction)
Number Employed at Mine: 30
Number Working at Time of Accident: 12
Time of Accident: 3:30 p.m.

Two mechanic helpers were installing a containment plate under the boom point sheave on a large dragline. The work was being done from a work platform suspended from the load line of a mobile hydraulic crane. A support brace had been installed in a location that could allow it to interfere with the point sheave. A welding lead ground clamp was attached to the containment plate and the brace was removed and welded in a different location. Work was completed at the end of the shift and one mechanic helper climbed off the work platform onto the walkway along the dragline boom. He removed his safety belt and gave it to the other mechanic helper who was to ride the platform to the ground. After the headache ball cleared the point sheave area, the mechanic helper on the platform gave the signal to lower the platform. The other mechanic helper noticed that the ground clamp was still attached to the containment plate. The platform began tilting and was momentarily held by the welding lead which created slack in the load line. When the ground clamp pulled loose, the platform dropped until it was caught by the load line. The jostling of the platform caused the mechanic helper, who was not wearing a safety belt, to fall approximately 100 feet.

Means of Prevention

Safety belts and lines shall be worn when persons work where there is danger of falling.

ABSTRACT OF INVESTIGATION

Date: August 7, 1990

Slide Number: 39 (Fatal Case Number: 38)
Accident Classification: Slip/Fall of Person
Type of Mine: Limestone - Surface Mill
Location: California

Age of Victim: 47
Total Mining Experience: 21 years, 6 months
Total Experience at this Mine: 21 years, 6 months
Total Experience at this Job: 11 years
Number Employed at Mine: 240
Number Working at Time of Accident: 28
Time of Accident: 10:00 p.m.

A maintenance worker (production operator II) was fatally injured when he stepped on an unsecured section of floor grating and fell about 61 feet to the second deck of a bucket elevator tower. The victim had gone to the top deck of the bucket elevator tower to assist with efforts to restart the bucket elevator. Just prior to his fall, the floor grating had dislodged and had been put back in place but not secured.

Means of Prevention

Defects on any equipment, machinery, and tools that affect safety shall be corrected in a timely manner to prevent the creation of a hazard.

ABSTRACT OF INVESTIGATION

Date: October 18, 1990

Slide Number: 40 (Fatal Case Number: 49)
Accident Classification: Slip/Fall of Person
Type of Mine: Limestone - Mill/Preparation Plant
Location: Oklahoma

Age of Victim: 36
Total Mining Experience: 12 years
Total Experience at this Mine: 12 years
Total Experience at this Job: 8 years
Number Employed at Mine: 114
Number Working at Time of Accident: 60
Time of Accident: 9:30 a.m.

A shipping department employee was loading rail cars with cement. The rail car had a long rectangular opening and the employee apparently stumbled and fell into the partially loaded car. He was removed immediately by coworkers. He complained of chest pains and collapsed. He was taken to the hospital were he died of asphyxiation.

Means of Prevention
Safety belts and lines shall be worn when persons work where there is danger of falling.

ABSTRACT OF INVESTIGATION

Date: October 12, 1990

Slide Number: 41 (Fatal Case Number: 48)
Accident Classification: Explosives and Breaking Agents
Type of Mine: Silica Flux - Surface
Location: New Mexico

Age of Victim: 31
Total Mining Experience: Unknown (Contractor)
Total Experience at this Mine: Unknown
Total Experience at this Job: Unknown
Number Employed at Mine: 4
Number Working at Time of Accident: 4
Time of Accident: 5:00 - 7:00 p.m

A part-time helper had drilled and loaded a series of blast holes. His mother and sister were there to observe the blasting. After preparing for the blast, his mother and the other workers left the area. The sister wanted to take pictures of the blast, so she remained. They backed off 150 feet from the blast site to take pictures. When the blast was detonated, the helper was hit on the head by a large piece of flyrock and was killed instantly. His sister suffered massive chest injuries and a punctured lung.

Means of Prevention

All persons shall be cleared and removed from the blasting area unless suitable blasting shelters are provided to protect persons endangered by concussion or flyrock from blasting.

ABSTRACT OF INVESTIGATION

Date: July 5, 1990

Slide Number: 42 (Fatal Case Number: 29)
Accident Classification: Explosives and Breaking Agents
Type of Mine: Limestone - Surface
Location: Kentucky

Age of Victim: 43
Total Mining Experience: 15 years
Total Experience at this Mine: 1 year, 9 months
Total Experience at this Job: 1 year, 9 months
Number Employed at Mine: 28
Number Working at Time of Accident: Unknown
Time of Accident: 12:00 noon

A blaster was fatally injured after giving an all clear signal to another blaster who fired a round. The victim was standing about 55 feet from the quarry wall, apparently thinking he was shielded by the highwall. A rock measuring 9 inches by 7 inches by 5 inches and weighing about 14 pounds was thrown over the 200-foot highwall by the blast, striking the victim in the head.

Means of Prevention

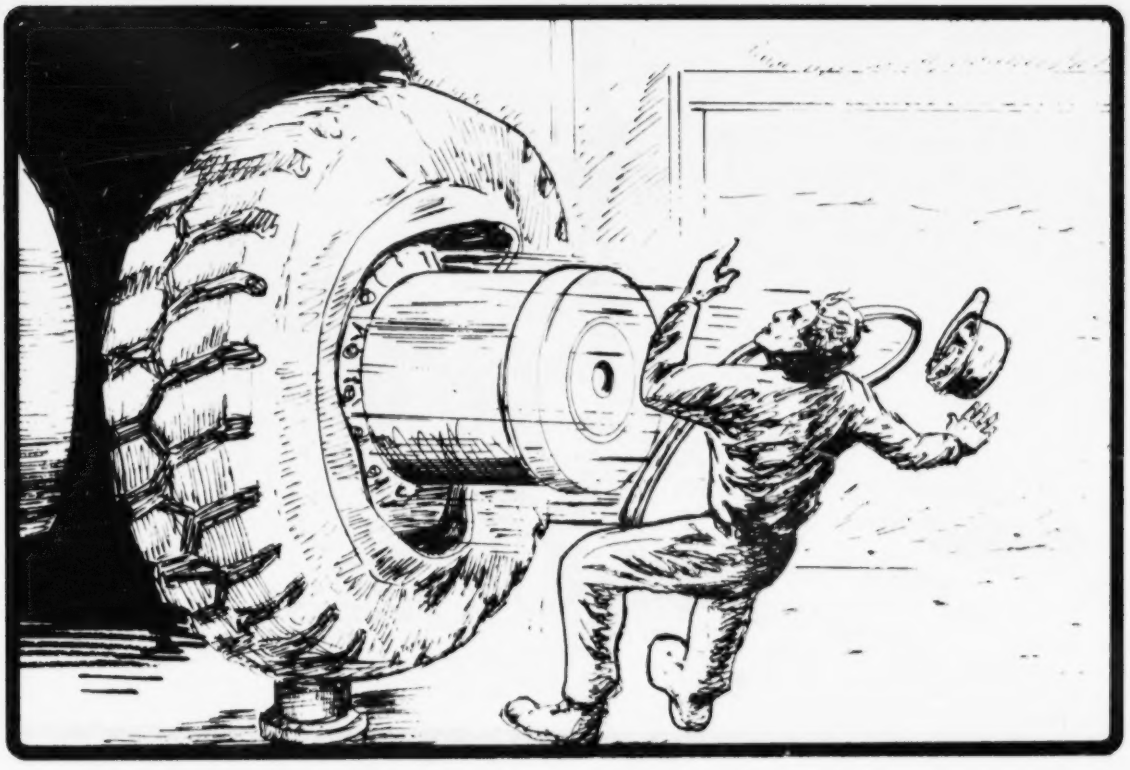
All persons shall be cleared and removed from the blasting area unless suitable blasting shelters are provided to protect persons from concussion or flyrock from blasting.

ABSTRACT OF INVESTIGATION
Date: July 6, 1990 (Died July 19, 1990)
Slide Number: 43 (Fatal Case Number: 32)
Accident Classification: Exploding Vessels Under Pressure
Type of Mine: Iron Ore - Surface
Location: Minnesota

Age of Victim: 54
Total Mining Experience: 33 years
Total Experience at this Mine: 16 years
Total Experience at this Job: 16 years
Number Employed at Mine: 58
Number Working at Time of Accident: Unknown
Time of Accident: 9:40 a.m.

A shop foreman assigned two automotive mechanics the task of replacing the driver side outside dual tire on a haulage truck. They were getting ready to install the replacement when they heard an air leak coming from the inside dual. One of the mechanics went into the shop to get some brake fluid to seal the air leak. The other automotive mechanic was standing next to the inside dual. An explosion occurred and parts of the multi-piece wheel rim struck the victim. The force of the explosion threw him approximately 30 feet where he landed on the concrete surface in front of the shop area. He died thirteen days later of his injuries.

Means of Prevention
1. Persons shall stand outside of the potential trajectory of the lock ring of a multi-piece wheel rim.
2. Maintenance safety policies should be reviewed with employees frequently.



ABSTRACT OF INVESTIGATION

Date: November 8, 1990

Slide Number: 44 (Fatal Case Number: 53)

Accident Classification: Other

Type Of Mine: Kaolin - Mill/Preparation Plant

Location: Georgia

Age of Victim: 24
Total Mining Experience: 3 months (Contractor)
Total Experience at this Mine: 3 months
Total Experience at this Job: 1 day
Number Employed at Mine: 331
Number Working at Time of Accident: Unknown
Time of Accident: 11:00 a.m.

A welder's helper was installing a monitoring probe in a sodium hydrosulfide storage tank. Nitrogen was being injected into the tank to prevent decomposition of the sodium hydrosulfide. Oxygen is displaced as a result of this procedure. The victim was lowered into the tank and suffocated in the oxygen deficient atmosphere. Two other employees were overcome during separate attempts to reach the victim. Neither the victim nor the men attempting to rescue him were using safety belts and lines.

Means of Prevention

Safety belts and lines shall be worn when persons work where there is danger of falling; a second person shall tend the lifeline when bins, tanks, or other dangerous areas are entered.